

WHAT IS CLAIMED IS:

1 1. A fluorescent lamp electronic ballast comprising:
2 a power factor correction flyback circuit composed of a rectifier
3 connected to a DC to DC flyback converter, the flyback converter including a
4 flyback transformer connected to a diode/capacitor combination, the flyback
5 converter including a switch used to switch the flyback transformer during operation
6 to produce a flyback waveform that is rectified by the diode and results in a DC
7 output at the capacitor; and
8 an inverter ballast circuit receiving the DC output and converting the
9 DC output to an AC signal for operating the fluorescent lamp.

1 2. The fluorescent lamp electronic ballast of claim 1 wherein the
2 rectifier receives an AC input having a varying frequency and the rectifier has a
3 sufficiently low input capacitance such that the rectifier output substantially takes
4 the form of a rectified AC wave.

1 3. The fluorescent lamp electronic ballast of claim 1 wherein the
2 flyback converter is configured to operate in a transition mode.

1 4. The fluorescent lamp electronic ballast of claim 3 wherein the
2 flyback converter includes a control loop configured to monitor the flyback
3 transformer and switch the flyback transformer asynchronously as needed to
4 maintain energy balance.

1 5. The fluorescent lamp electronic ballast of claim 4 wherein the
2 control loop is connected to the DC output.

1 6. The fluorescent lamp electronic ballast of claim 1 wherein the
2 rectifier receives an AC input having a frequency that varies to frequencies
3 exceeding 300 Hz.

1 7. The fluorescent lamp electronic ballast of claim 1 wherein the
2 rectifier receives an AC input having a frequency that varies primarily between 300
3 Hz and 800 Hz.

1 8. The fluorescent lamp electronic ballast of claim 1 wherein the
2 inverter ballast includes a self-oscillating resonant circuit including a pair of power
3 transistors, and the flyback converter is further used to create a DC bias for use by
4 the power transistors.

1 9. The fluorescent lamp electronic ballast of claim 1 wherein the
2 DC output is 28 VDC.

1 10. The fluorescent lamp electronic ballast of claim 1 wherein the
2 rectifier has an input capacitance of less than 0.5 microfarads.

1 11. The fluorescent lamp electronic ballast of claim 1 wherein a
2 ratio of a line input peak voltage to the reflected voltage is less than one.